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ABSTRACT

The Nutrition Education Program, implemented in 25 Pennsylvania counties in 1969, attempted to help low-income families improve the nutritional adequacy of their diet by teaching food preparation, buying, and storing, and encouraging the use of food stamps. As of June, 1970 monthly turnover of clients stabilized at five percent, but there was a lessened percentage of persons in the less than $3000 annual income bracket. At the time that the first food records were taken, only 10 percent of the diets were considered adequate, while second records showed that 18-20 percent were satisfactory. The greatest improvements were in the milk and fruits and vegetables groups. The presence of older school children in the family had a positive effect on the dietary knowledge level of the homemaker, which, in turn, had a positive effect on dietary intake. (CL)

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AN EVALUATION OF THE EXPANDED NUTRITION EDUCATION PROGRAM IN PENNSYLVANIA

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The Pennsylvania State University

The Graduate School

Department of Extension Education

AN EVALUATION OF THE EXPANDED NUTRITION EDUCATION PROGRAM IN PENNSYLVANIA

A Professional Paper

by

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Submitted in Partial Fulfillment

of the Requirements for the Degree

Master of Education

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CHAPTER I

INTRODUCTION

The Situation. The Cooperative Extension Service in all 50 states of the United States of America (and Puerto Rico and the Virgin Islands) is currently involved in an "Expanded Nutrition Education Program." It is the purpose of this paper to evaluate the program in Pennsylvania. Although the United States Department of Agriculture had long been concerned with nutrition in America, numerous reports and studies were responsible for the development of this program, which began in January of 1969.

In January of 1968 a preliminary report of "Dietary Levels of Households in the United States" was released.[1] This report showed that in the spring of 1965, when the survey was taken, the diets of American people were less adequate than they had been ten years earlier when a similar survey had been made. Decreased use of milk and milk products and vegetables and fruit, the main sources of calcium, ascorbic acid, and vitamin A, was chiefly responsible for these changes in dietary levels. Diets were considered "poor" if one or more of the seven nutrients studied fell below two-thirds of the recommended dietary levels and "good" diets were those that met the allowances for all nutrients. In 1965 one-half of the households surveyed had good diets, while the 1955 survey had shown that sixty per-

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[1] United States Department of Agriculture. "Dietary Levels of Households in the United States," ARS 62-17, Spring 1965. (January 1968) p. 3-4.

cent of the households had good diets. The proportion with poor diets had increased over the ten year period from about fifteen percent in 1955 to twenty percent in 1965. The remaining thirty percent of the households studied in 1965 had diets between good and poor. Their diets did not meet all allowances, but the level of intake for any of the seven nutrients did not fall to two-thirds of the recommended intake.[2] In addition, the 1965 survey showed that although adequate incomes did not insure adequate diets, those households with annual incomes below $3,000 were more likely to have inadequate diets. Almost two-thirds--sixty-three percent--of the poor had diets that did not meet the allowances for one or more nutrients and thirty-six percent had diets classified as poor. In view of these findings, the Directors of the Federal Extension Service urged State Cooperative Extension Staffs to expand their educational efforts in the area of nutrition and to concentrate specifically on families with young children, low-income families, and the aged, as well as the general public.

In May, and again in June, 1968, the Columbia Broadcasting System aired a television show entitled "Hunger in America" which created increased public awareness of the plight of low-income families. Although parts of the program were later shown to be inaccurate and some scenes deliberately misleading, it did serve to create pressure on legislators to increase efforts in food assistance programs.

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[2]The seven nutrients studied were: protein, calcium, iron, vitamin A, thiamine, riboflavin, and ascorbic acid.

In the spring of 1968, a publication entitled Hunger U.S.A. was released. This publication, a report by a "Citizens' Board of Inquiry into Hunger and Malnutrition in the United States," documents the plight of millions of Americans who have incomes which are inadequate to supply the basic necessities of life, and the inadequacy of government food and assistance programs to remedy the situation. These reports and their publicity sparked other investigations into the nutritional quality of Americans' diets, all of which indicated that many persons, because of a combination of lack of knowledge and their economic situations, needed help. Other research has supported the belief that diet is an important factor in physical and mental functioning.

The Nutrition Education Program. Early in November of 1968, the Federal Extension Service announced that ten million dollars of Federal funds had been made available to expand Extension Home Economics education programs with low-income families with a primary emphasis on foods and nutrition. The funds were Section 32 funds acquired from duty on imported foods and the General Council placed certain limitations on their use. Basically, the funds were to be used by County Cooperative Extension Services to employ "program aides" who were to be trained to help low-income families improve the nutritional quality and adequacy of their diets through education. The program aides were to be hired from the low-income areas and were to be persons who had an understanding of the problems that low-income families must face, and the ability to work with and have empathy

for the poor in their indigenous areas. It was understood that, although the ultimate goal of the effort was to improve nutritional adequacy, other aspects of family living must also be considered and sometimes other needs must be met and problems solved before the client homemaker would be able to concentrate on the food needs of her family. The program was implemented in a number of counties in each of the fifty states in the United States. Each state received their share of the money in proportion to their number of low-income families. In Pennsylvania, twenty-five counties participated on a pilot basis, beginning in January of 1969. The original funding was to last until July of that year, at which time continued funding would depend upon estimated results. The program was refunded in July and expanded to include professional youth workers in October. The Federal Government did approve a budget request of thirty million dollars to continue the program in 1970.[3] One-fourth of these monies was to provide staff to expand the Nutrition Education Program to work with low income urban youth in 4-H like activities. The decision to use indigenous program aides was based on the success of several pilot projects sponsored by the Federal Extension Service.[4] These projects were used to develop and test more effective educational techniques for

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[3]United States Department of Agriculture, Appropriations for 1970, Hearings, Part 2. (Washington, D.C.: Government Printing Office, 1969) pp. 376-379.

[4]United States Department of Agriculture, "Five-Year Report Pilot Project Involving Young Homemakers in Low Income Rural Areas of Alabama" Cooperative Extension Service, Auburn University, Auburn, Alabama in Cooperation with Federal Extension Service, 1964-1969.

working with low-income families on problems of nutrition and related family concerns. Since many low-income homemakers do not attend meetings, read publications, or learn from their neighbors, County Extension workers had found it difficult to reach needy families with effective Extension programs by using group educational processes. The small professional staff normally available in each county was inadequate to work with homemakers on a one-to-one basis. One pilot effort in rural Alabama where "program aides" were employed to work under the supervision of the County Extension Home Economist proved to be particularly successful. The target families in this study did respond to the one-to-one kind of educational assistance and did make lasting and continuing progress toward better living.

Approximately fourteen percent of the families in Pennsylvania, according to 1966 figures, are living in poverty (less than $3,400 annual income for a non-farm family of four). This amounts to 419,361 families.[5] The Nutrition Education Program, as the effort was named, implemented in twenty-five Pennsylvania counties in 1969 was designed to help these families through education.

Program Objectives. The educational objectives of the program are:

1. To help low-income families improve the nutritional adequacy of their diet.

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[5]Poverty in Pennsylvania, Community Services of Pennsylvania, August 1968, p. 4.

2. To help families and especially the homemaker to better manage limited resources.
3. To help the homemaker in these families improve their food preparation skills.
4. To help families use better food buying practices.
5. To help families use improved methods of storing food.
6. To encourage families to use the food stamp program or commodity distribution foods.

This paper is a report of the progress of the program in Pennsylvania through June of 1970.

Hiring and Training. In February of 1969, Nutrition Aides were hired and were training in eighteen geographic areas of Pennsylvania. These Aides would serve the low-income homemakers in twenty-five counties. In most cases, the Extension Home Economist worked with at least one other agency to get applicants for the Nutrition Aide positions. Local OEO offices, with their job opportunity workers were helpful, Department of Public Welfare workers suggested clients who they felt would make good Aides, and the Employment Security offices were consulted and in some cases helped to interview applicants.

An effort was made to hire Aides whose socio-economic characteristics matched those of the particular low-income target audience to be reached. Procedures varied from county to county as situations dictated. In all cases, the Aides were persons who could relate to, have empathy for, and understand the problems faced by the low-income families they would serve. Although formal education was not a criterion used in

hiring, the persons selected were women who were judged to be good homemakers themselves, and who had the intelligence which would enable them to carry out the responsibilities of the job. Many of the women hired had been, or were then, welfare recipients. A concentrated three week training period followed. The Nutrition Aides were instructed in human nutrition, food buying, storing, and preparation skills. They also received training in skills necessary to gain the interest and confidence of the client families and to keep the required records. Food preparation was practiced as were lessons which would be repeated with the client homemakers. The Aides were supplied with reference materials and with educational materials which would be given to client homemakers. By the beginning of March, most groups were ready to begin visiting potential clients. Training of Aides has been continued as the need arises. Most groups continued to meet once a week for training purposes and the entire three weeks of training has been repeated for new Aides in a number of counties.

Recordkeeping. Names of potential clients were secured from Welfare offices, ministers, doctors, schools, school nurses, etc. As the Aides began their work, they visited from door-to-door to introduce the program and gain clients. Each homemaker who expressed that she would like to have a Nutrition Aide call at her home was added to the Aide's list of Families (see Appendix A). A new client was not considered "in the program" until the "Family Record, Part 1," or Description, had been at least partially completed (see Appendix A).

The Aides have found that they sometimes need to spend considerable time with a client to gain her interest and confidence before actual nutrition education can begin. Each visit to each client is reported by a "log" (see Appendix A) which is written by the Aides and turned in to the Home Economist weekly. "Family Record, Part 2," (see Appendix A) which is a record of the client homemaker's food intake and the family's income and food expenditures, is completed for each client as early as possible and again at six-month intervals thereafter.

The County Extension Home Economist, who is in charge of the Aides, makes a monthly report to the state via "Unit Report--Part 3" (see Appendix A). This report is completed by using the information from the "Aides' List of Families" and from the Home Economist's records concerning the Aides themselves. At six-month intervals, in September and in March, a more complete report is made to the state via "Unit Report--Part 1" and "Unit Report--Part 2" (see Appendix A). Copies of these unit reports are sent to the Federal Extension Service in Washington, D.C. Data from these reports are used by the Economic Research Service of the USDA to evaluate the program.

Briefly, then, there are monthly tallies of the number of persons being reached, the number of Aides working, and the number of families who are participating in one of the two USDA food programs. In March and September there are more complete reports made which include socio-economic data on the client families and reports of food intake and nutritional knowledge. The remainder of this report is derived from these records, plus a more complete analysis of a sample of Family Records, Parts 1 & 2.

CHAPTER II

FINDINGS

Growth of the Program in Pennsylvania. Table I shows the growth of the Nutrition Education Program in Pennsylvania through June of 1970. Column five shows the growth rate which was rapid in the early months and has since slowed. There was one new county involved in March and one in May of 1970, which accounts for some of the growth rate in those months. The dropout rate of families in the program has also leveled off. The high dropout in March is probably due to the fact that some inaccurate recordkeeping was brought to the attention of the Home Economists in charge when they made their first Unit Reports, Parts 1 and 2. In order to correct the inaccuracies, some clients who had mistakenly been considered "in" the program were "dropped" on paper only. Some of these clients were undoubtedly then "added" in later months. This theory is based on personal experience and through consultation with other Home Economists. It is unfortunate that no records are retained at the state level concerning the clients who drop out. On the "Aides List of Families" there is a column that includes "reason for family leaving program" but this is frequently not completed. No notation of it is sent to the state and there is no information calculated concerning the nutritional level or the characteristics of the families who drop out of the program.

The food stamp program was revised to be more advantageous to the participants in April of 1970. It would be expected

TABLE I

STATUS OF THE NUTRITION EDUCATION PROGRAM IN PENNSYLVANIA THROUGH JUNE 1970

Number of Client Families								Aides				
Date	At First of Month	Added	Dropped	At End of Month	% Gain	% Drop	Using Food Stamps	%	At First of Month	Added	Dropped	At End of Month	Families per Aide
2/69	00	1279	61	1218	00	5	396	32	0	197	04	193	9
2/69	1218	1833	402	2649	150	33	781	29	193	13	07	199	17
4/69	2649	1505	613	3541	57	23	1050	30	199	01	22	178	22
5/69	3541	1226	483	4282	35	14	1214	28	178	25	08	195	24
*6/69	4284	1434	437	5469	34	10	1206	22	195	--	--	---	34
*7/69	5469	689	367	5791	13	7	1545	26	---	--	--	---	--
8/69	5791	603	386	6008	10	7	1276	21	189	01	08	182	40
9/69	6008	631	1025	5614	10	17	1468	26	182	02	04	180	37
10/69	5614	1137	315	6436	20	6	1375	21	180	03	03	180	39
11/69	6436	484	271	6649	7	4	1499	22	180	07	02	185	44
12/69	6649	341	781	6209	5	12	1300	21	185	11	05	191	38
1/70	6209	584	154	6239	9	2	1617	24	191	25	05	211	37
2/70	6239	995	235	7399	15	3	1582	21	211	15	07	219	42
3/70	7399	601	440	7560	8	6	1690	22	219	13	08	224	34
4/70	7560	674	327	7909	9	4	1987	25	224	0	11	213	37
5/70	7907	483	210	8180	6	3	2103	26	213	08	08	213	44
6/70	8180	467	288	8359	6	3	2077	25	213	01	10	204	41

* Complete data not available.

that participation would increase and the reports do show a slight increase in April. As this percent participation tends to fluctuate within one or two percentage points each month, it is impossible to say that any trend exists. The percentage of persons in the program who use Food Stamps has consistently been more than five percentage points below the percent of welfare recipients and, as all welfare recipients are automatically eligible, it is conclusive that the Nutrition Aides have not been successful in persuading all eligible clients to use the food stamp program. (Note Table I, Column 7 and Table II-A.)

Table II is a composite of the Pennsylvania Unit Report--Part 1 which gives the characteristics of the families in the program. The Unit Reports, as mentioned before, are completed twice a year--as of the end of March and September. There have been three unit reports made as of this writing and the reader will note that the percentages within certain categories has changed slightly but progressively with each report. The first report made at the end of March 1969 was based on records taken in February and March. The second and third reports, made at the end of September 1969 and March 1970, are based on records taken over the full six months prior to the report. As the program progressed, the Aides have contacted more rural non-farm dwellers and a smaller percentage of the total clients are urban dwellers. The percentage of clients who are welfare recipients has decreased slightly with each report. The percentage of white clients has increased and the percentage of non-white clients had decreased. Some of these changes can be

Table II

CHARACTERISTICS OF PENNSYLVANIA NUTRITION EDUCATION PROGRAM PARTICIPANTS

A. Characteristics of Families in the Program

Date	Urban		Rural Non Farm		Rural Farm		Welfare		Children in School (No.)	Children Who Had School Lunch		Total Families
	No.	%	No.	%	No.	%	No.	%		No.	%	No.
3/69	1971	74	617	23	61	2.3	1004	38	4991	2202	44	2649
9/69	4020	72	1466	26	128	2.3	2010	36	9862	3792	38	5614
3/70	5148	68	2200	29	212	3.8	2400	37	11653	5443	47	7560 *

B. Characteristics of Homemakers in the Program

Date	Caucasion		Negro		Other		With Less Than 8th Grade Ed.		Program Aides Caucasion		Negro		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
3/69	1276	60	755	35	108	5	380	12	115	58	79	40	5	2
9/69	3410	62	1925	35	153	3	617	11	117	65	60	33	3	2
3/70	4591	65	2275	32	215	3	924	12	133	59	86	38	5	2 *

C. Income of Families in the Program

Date	Less Than $1,000		$1,000-$1,999		$2,000-$2,999		$3,000-$3,999		$4,000-$4,999		$5,000-Over	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
3/69	116	6	265	14	416	23	466	26	316	17	244	13
9/69	183	4	548	11	851	17	1372	27	1076	22	930	19
3/70	196	3	780	11	1047	16	1723	26	1477	22	1369	21 *

* Percentages do not always total 100 due to rounding.

attributed to the fact that rural dwellers have less income, less education, are less likely to avail themselves of welfare services, and are less likely to be Negro. As the Aides in the beginning worked in urban areas more intensely where the clients were easier to find and closer together and then gradually expanded into less urban areas, these figures seem reasonable. The program also grew more rapidly at first in urban areas and less quickly in the rural counties where clients are more difficult to contact.

The drop in school lunch participation shown in Table II-A made in September 1969 is a reflection of the family records that were taken during the summer months when school was not in session.

Table II-C shows that about forty-four percent of the clients reporting in March 1969 had annual incomes of less than $3,000. The second unit report made in September 1969 shows that this percent had dropped to thirty-two, and in the third report it has dropped to thirty. One explanation for this trend is that as the Aides become more fully occupied with clients they tend to spend more time with those clients who have the equipment and materials with which to work.[6]

The client homemaker who does not have the food with which to work or does not have the equipment is also less likely to want to receive visits from a Nutrition Aide; therefore, the

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[6]This theory has been supported by unpublished research done by J. P. Madden, The Pennsylvania State University, 1970.

Aide goes on to someone who does want to participate. This is unfortunate as it seems that several factors are at work to limit the participation of those clients who potentially need the program the most.

Dietary Adequacy of Client Group. The National Research Council which is a board of the National Academy of Sciences has set recommended dietary allowances for sixteen food nutrients plus recommended numbers of calories for humans. Nutrition scientists have translated this knowledge of the nutrient needs of people and the nutritive values of foods into an easy-to-use guide for food selection. This guide, called the "Daily Food Guide," sorts foods into four groups on the basis of their similarity in nutrient content. The first of the four groups is "Milk" and includes milk--fluid whole, skim, evaporated, dry, buttermilk; cheese--cottage, cream, cheddar-type, natural, process; and ice cream. Foods in the milk group are relied on to meet most of the calcium needs and their value is figured on the basis of calcium content. The second food group is "Meat" and includes meat, poultry, fish, eggs, as well as dry beans, dry peas, and nuts. These are needed by the body for their protein content, certain vitamins and iron. The third group is the "Vegetable-Fruit" group and includes all fruits and vegetables. This group supplies vitamins and minerals. Since vitamins A and C (or ascorbic acid) are usually concentrated in certain fruits and vegetables, the guide does qualify the vegetable-fruit group as will be mentioned later. The fourth and last food group is the "Bread-Cereal" group and includes whole grain and enriched bread and other cereal products. This group

is important for protein, iron, several of the B-vitamins, and food energy. Fats, oils, sugars and other sweets are not emphasized in the guide because they are usually common in every diet and their chief nutritional contribution is energy.

The "Daily Food Guide" suggests that certain numbers of wisely selected servings from these four groups will furnish all of the known dietary nutrients in adequate quantities. It recommends for non-pregnant or lactating adult human females two servings each day from the milk group, two servings each day from the meat group, four servings each day from the vegetable-fruit group (one rich in ascorbic acid every day, and one rich in vitamin A every other day) and four servings each day from the bread-cereal group. The guide, in addition, specifies what constitues one serving of the various foods within each group (see Appendix A).

The twenty-four hour diets recalled by the client homemakers and recorded by the Nutrition Aides are examined by the Aides for adequacy on the basis of the "Daily Food Guide." The Aides can help the homemaker to improve her diet by comparing her twenty-four hour diet with the "Daily Food Guide." Unit Report, Part 2 (see Appendix A) is a summary of the client homemaker's food records, family incomes and food expenditures. Each diet record is scored by the Home Economist in charge--the number of servings regardless of size in each food group are calculated, counted and totalled. No effort is made in the scoring to look for vegetables and fruits rich in vitamins A and C. The records are then classified into three categories:

(1) those not having at least one serving from each of the four food groups; (2) those which do have at least one serving from each food group (1-1-1-1) and group (3) those having at least two servings each of the milk and meat groups and four each from the vegetable-fruit and bread-cereal group (2-2-4-4). Table III-A shows the percentage of persons in these three categories in the first food records taken before March 31, 1969, and then in the second food records taken between April 1 and September 30, 1969 and then in the third food records taken between October 1, 1969 and March 31, 1970. These are the same persons reduced in total numbers with each record due to homemakers dropping out of the program or being "graduated" from the program.

Table III-B shows similar totals for persons entering the program and having their first food records taken between April 1, 1969 and September 30, 1969, and their second records taken between October 1, 1969 and March 31, 1970. Note that in both charts the percentage of the totals of persons having 1-1-1-1 and those having 2-2-4-4 in each successive record has increased remarkably. Unfortunately, the characteristics of the clients who dropped out of the program are not known. If those persons who had the least adequate diets when the first records were taken dropped out, the gain in nutritional practice is not as remarkable but still some gain can be shown. In all likelihood, some dropouts were those with poor diets. Those persons, however, who were "graduated"[7] were probably those with better than

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[7]The Aides when they feel that they can teach the homemaker nothing more stop seeing her and officially drop her from the program. They may check back occasionally if there are questions.

TABLE III

CHANGES IN DIETARY INTAKES OF NUTRITION EDUCATION PROGRAM CLIENTS

A. Client homemakers who entered program before 3/69

Record	Percent scoring at least 1-1-1-1*	Percent scoring 2-2-4-4**	Number Reporting***
First Before 3/69	62	10	1819
Second 4/69-9/69	82	20	1272
Third 10/69-3/70	78	22	1118

B. Client homemakers who entered program between 4/69-9/69

Record	Percent scoring at least 1-1-1-1*	Percent scoring 2-2-4-4**	Number Reporting***
First 4/69-9/69	70	11	3961
Second 10/69-3/70	77	18	3538

C. Client homemakers who entered program between 10/69-3/70

Record	Percent scoring at least 1-1-1-1*	Percent scoring 2-2-4-4**	Number Reporting***
First 10/69-3/70	66	11	2721

* Persons who reported having had at least one serving from each of the four food groups.

** Persons who reported having at least: two servings from the "Milk" group, two servings from the "Meat" group, four servings from the "Fruits and Vegetables" group and four servings from the "Breads and Cereals" group.

*** Decrease in N is due to families dropping out of the program or being dropped or graduated by the Aide.

average diets. Unless we have some way of knowing what persons drop out or follow the records of a group of persons known to be the same, we cannot categorically claim success in improving diets. An attempt to study a small sample of matching records has been made and will be discussed later. Note that on Table III-A the first record shows that sixty-two percent of those reporting had at least one serving from each food group and that only ten percent had the ideal 2-2-4-4 total or more while Table III-B shows that the same percentages in the next group of first record clients are higher--seventy percent and eleven percent respectively. This could be due in part to the fact that the second group of first records were taken over the months when fresh fruits and vegetables are plentiful and less costly. The fact that dietary consumption is more nearly adequate in the summer and early fall months is substantiated by unpublished research now being carried out by J. P. Madden at The Pennsylvania State University. Partly because of this factor, the gain shown in Table III-B by the second group of clients on their second food records is not as remarkable. Note also that the decrease in the number of persons reporting second records over those reporting first records is not as great in Table III-B as in Table III-A. Table III-C shows the first records which were taken on a third group of clients between October 1, 1969 and March 31, 1970 and shows proportions of persons in each of the three categories similar to those taken on new clients a year earlier. This fact would suggest that the dietary characteristics of the persons being reached by the Nutrition Education program has continued at approximately

the same poor level even though some socio-economic characteristics as suggested earlier have changed slightly. In other words, by an admittedly rough measure, of those persons being reached by the Nutrition Education Program less than eleven percent start out with adequate diets. The dietary records are supposedly taken at random Monday through Friday throughout the months so a variation due to the day of the week or time of the pay cycles should not influence the findings. In reality the Nutrition Aides find that there is no point in visiting some clients toward the end of pay periods when there is a small amount of food in the home. Therefore, they plan their visits to these clients soon after the pay periods rather than at the end of pay periods. This fact coupled with the probability that clients will prepare for the visit by having more food available, might have the effect of raising the adequacy of diet records taken on planned visits. Therefore, the second and third food records, if taken on planned visits, are apt to be an improvement over the first records which were taken at an unplanned visit. Conversely it has been shown that Saturday and Sunday diet records are consistently more adequate than week day records.[8] If this is true, diet records taken on Tuesdays through Fridays would be consistently biased downward from a real weekly average. An examination of the food records in participating counties has shown that the aides actually tend to take the food records in the two months that the Unit Reports, Parts 1 and 2 are due (in September and March) rather than at

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[8]This has been supported by unpublished research done by J. P. Madden, The Pennsylvania State University, 1970.

exact six month intervals after the first record taken when the client homemaker entered the program. What effect this would have on the reliability of the figures to show improvement in dietary practices is questionable.

There is an extremely wide variation on these same totals between counties. One county showed that only eleven percent of the clients reported had at least one serving from each of the four food groups and none with the ideal 2-2-4-4 or more score. Another county showed that more than ninety-five percent had a 1-1-1-1 total. These extremes are, however, without exception, found in the counties with smaller numbers of persons reporting. Several individual counties showed a lessened adequacy of diets in the second records. Here again, this happened in counties where the number reporting was very small or where the number of dropouts between reports was very great.

It is possible that the Home Economists, even though all are supposedly following the same directions, could be using techniques in scoring diet records that would bias the results. The other possibility is that ethnic groups in certain counties could cause variation.

The "Dietary Levels of Households in the United States" report of 1965 showed that dietary levels were lowest for women largely because of their failure to drink milk or to consume other milk products and to eat sufficient quantities of fruits and vegetables. Data from the Unit Report, Part 2, shown in Table IV support this finding. This table shows the number of persons reporting none or various numbers of servings from each

TABLE IV

PERCENTAGES OF PENNSYLVANIA HOMEMAKERS IN THE NUTRITION EDUCATION PROGRAM, ENROLLED PRIOR TO MARCH 1969, REPORTING VARIOUS NUMBERS OF SERVINGS FROM EACH OF THE FOUR FOOD GROUPS ON DAILY DIET RECORDS TAKEN AT SIX MONTH INTERVALS

Food Group	Number of Servings	First Record 3/69 Percent	Second Record 4/69-9/69 Percent	Third Record 10/69-3/70 Percent
Milk	0	25	15	16
	1	30	24	26
	2	27	29	33
	Over 2	19	32	25
		101*	100	100
Meat	0	3	2	1
	1	23	14	15
	2	44	40	41
	Over 2	31	44	43
		101*	100	100
Fruits and Vegetables	0	6	3	3
	1	19	10	11
	2	25	21	20
	3	22	22	23
	4	18	22	24
	Over 4	10	21	20
		100	99*	101*
Bread and Cereals	0	3	1	1
	1	12	6	7
	2	21	18	13
	3	28	27	27
	4	21	26	28
	Over 4	16	21	25
		101*	99*	101*
N		1804	1221	1079
Average Monthly Income		$324	$312	$345
Average Monthly Expenditure for Food		$ 90	$108	$117

* Percentages do not total 100 due to rounding.

of the four food groups for the first, second, and third reports of the clients who entered the program before March 31, 1969. The first report shows: more than fifty-five percent of the client homemakers had less than two servings from the milk group and twenty-five percent had none. Seventy-two percent of the clients had less than four servings of fruits and vegetables. Only twenty-five percent had fewer than two servings from the meat group, and only three percent had none. Sixty-three percent of those reporting had fewer than four servings from the bread and cereal group.

If the nutrition education program is successfully improving food habits, the client homemakers, in their second and third reports, should show more persons having adequate numbers of servings of milk, fruits, vegetables, and bread and cereal. They should all have at least two servings from the meat group; however, if saving money is important the proportion who have three or more servings of meat a day should grow smaller. Again, looking at Table IV the proportion of persons whose food records show adequate or more numbers of servings from each of the four food groups has increased with each successive food record. (Milk actually shows a slight drop between the second and third records--from sixty-one percent having two or more servings to fifty-eight percent.) The gain is most remarkable between the first and second records. The time of year cannot be disregarded in evaluating this gain. The first records were taken between February 1 and March 31 (winter months) and the second records were taken between April 1 and September 30. Since fruits and vegetables are more plentiful during the summer months a gain,

TABLE V

PERCENTAGES OF PENNSYLVANIA HOMEMAKERS IN THE NUTRITION EDUCATION PROGRAM, ENROLLED BETWEEN OCTOBER 1969 AND MARCH 1970, REPORTING VARIOUS NUMBERS OF SERVINGS FROM EACH OF THE FOUR FOOD GROUPS ON DAILY DIET RECORDS TAKEN AT SIX MONTH INTERVALS

Food Group	Number of Servings	First Record 4/69-9/69 Percent	Second Record 10/69-3/70 Percent
Milk	0	22	16
	1	31	30
	2	23	27
	Over 2	24	28
		100	101*
Meat	0	2	2
	1	17	17
	2	39	40
	Over 2	40	42
		98*	101*
Fruits and Vegetables	0	5	3
	1	15	12
	2	23	22
	3	24	23
	4	17	21
	Over 4	16	21
		100	102*
Bread and Cereals	0	3	1
	1	8	5
	2	19	15
	3	27	29
	4	24	26
	Over 4	19	25
		100	101*
N		3858	3334
Average Monthly Income		$308	$347
Average Monthly Expenditure for Food		$103	$117

especially in the vegetable-fruit group, might be expected regardless of an educational program. There is some evidence to show that this does happen. Comparing the first records (Table IV) with the first records for a different group of clients represented in Table V we see that the proportion of homemakers with adequate servings of the vegetable-fruit group is higher for the first record (Table V) which was taken between April and September than it is in the first record (Table IV) which was taken in the winter months. As all food groups in the first record on Table V show slightly higher proportions of persons with adequate amounts, the differences cannot be attributed totally to the season. Table VI shows the first food record for a third group of clients taken from October 1, 1969 to March 31, 1970. Note that the percentages do approximate those of the first records in Table IV more closely than they do those of the first records shown in Table V. This supports the theory that season of the year does affect the dietary intake of homemakers participating in the Nutrition Education Program.

In all probability, in the summer and fall months, persons do have better diets,[9] but not enough to account for the full amount of improvement shown by the clients in the Nutrition Education Program.

It is possible that homemakers in the program, having learned what foods they should eat, try to please the Aides by reporting more adequate food intakes than they have actually had.

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[9]This has been substantiated by Dr. J. P. Madden's unpublished research, 1970, The Pennsylvania State University.

TABLE VI

PERCENTAGES OF PENNSYLVANIA HOMEMAKERS IN THE NUTRITION EDUCATION PROGRAM, ENROLLED BETWEEN OCTOBER 1969 AND MARCH 1970, REPORTING VARIOUS NUMBERS OF SERVINGS FROM EACH OF THE FOUR FOOD GROUPS ON THEIR FIRST DAILY FOOD RECALL

Food Group	Number of Servings	First Record 10/69-3/70
Milk	0	26
	1	31
	2	24
	Over 2	20
		101*
Meat	0	4
	1	23
	2	44
	Over 2	29
		100
Fruit and Vegetables	0	9
	1	19
	2	24
	3	21
	4	14
	Over 4	13
		100
Bread and Cereals	0	4
	1	9
	2	19
	3	26
	4	24
	Over 4	18
		100

N = 2,721
Average Monthly Income = $325.00
Average Monthly Expenditure for Food = $114.00

* Percentages do not total to 100 due to rounding.

Table IV also shows that the gain in the proportion of persons having adequate numbers of servings of the four food groups increases only slightly, and actually decreases for milk, between the second and third records. Here again, the time of year may be influencing the results. Without the Nutrition Education Program, the persons whose third records were taken between October 1, 1969 and March 31, 1970 might have had much less adequate diets. Lack of a control group precludes any firm conclusion concerning the differences being attributable to the seasons of the year or to the Nutrition Education Program.

One other interpretation could be made from Table IV. Since the improvement shown by the third records over the second records is so slight the conclusion that work by the Nutrition Aides with any one client for longer than six months is impractical, could be drawn. As mentioned before, the lack of knowledge concerning the dropouts and the effects of seasons disallows any such conclusion.

The fact that thirty-one percent of the homemakers whose food records are represented in Table IV had three or more servings from the meat group on the first record, and forty-four and forty-three percent had similar servings on the second and third records respectively, would suggest that poor diets are not caused by lack of money per se. Meat is the single most expensive item in the food budget, demanding in America, about forty percent of the food dollar. Money can be saved by substituting other high quality protein foods, such as dried beans and peas or eggs for meat. The records show only the

number of servings from the meat group. Some or all of these servings could be meat substitutes such as dry beans. This, however, seems highly unlikely. If the Nutrition Aides are effectively helping the homemakers to save money one would expect the proportion of clients who had more than two servings from the meat group on the twenty-four hour period prior to the taking of the record to be reduced on successive records. This is not the case. The proportion of persons having three or more servings from the meat group has increased on successive records. Since the Aides have been taught to encourage clients to consume some protein rich food at each of three meals, the fact that many clients are having three or more servings per day from the meat group should be interpreted as a success rather than a shortcoming of the program.

The Family Reocrd, Part 2 also asks for the amount spent for food. Many persons do not answer this question and the accuracy of the answers of those who do is highly suspect. For what it is worth, the average amount spent per month for food based only on the answers that were given to Question 8, Family Record, Part 2 (Appendix A) has increased over the period of time represented by three report periods. This does not necessarily mean that the Aides are not helping the homemaker clients to shop better. Better diets will cost more and the price of food did increase by seven and one-half percent[10] from March 1969 to March 1970, the time period covered by the three reports.

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[10]United States Department of Labor, Bureau of Labor Statistics, June 1970, The Consumer Price Index for March 1970.

Family Record, Part 2 (Appendix A) includes a rough measure of the client homemakers' knowledge concerning human nutrition. The question "What do you think people should eat and drink to stay healthy?" was asked. The answer was recorded and then the records were scored according to the number of items mentioned in each food group. Clients' response to this question has little relationship to their food habits. The question may be leading in that the mention of "drink" prompts the client to think of a liquid that is healthful and milk is the most obvious answer.

Less than ten percent of the clients failed to name milk as being needed on the first record, yet over twenty-four percent had failed to have any food from the milk group. The food group most often not mentioned by the client homemakers, strangely enough, is breads and cereals - the same food group that the fewest persons had failed to eat in the twenty-four hour recall. (Only two and eight tenths percent had failed to eat bread.) One explanation for this discrepancy is that possibly the client homemakers take the bread-cereal group for granted. It is the one food that is almost always available; therefore, loses its image of desirability and value. Another explanation could be that clients do not know that bread and cereal products are necessary to health but see them only as fillers to assuage their hunger.

CHAPTER III

FACTORS RELATED TO NUTRITION KNOWLEDGE AND ADEQUATE DIETARY INTAKE

The Sample. Information was also gathered from a sample of Family Records, Parts 1 and 2 which was collected in September 1969 from fifteen of the counties participating in the program. Included in this sample were records taken between February 1969 and October 1969. Information from these records had been transferred to data cards and their future use, although not thoroughly planned, was anticipated to be evaluation of the program. The original data included 3,345 clients with Records, Part 1, some with first and second Family Records, Part 2 and some with only first Records, Part 2. The coding of the data on to the cards had been done to preserve as much of the information as possible although no interpretations were made at that time. In cases where the clients had failed to answer and/or the Aide had failed to record an answer, the code used was "0." This proved to be confusing in cases where zero could have been a legitimate answer, although it probably did not bias the results to any great degree. It was possible to sort out the legitimate zero answers for number of servings of one of the four food groups on the twenty-four hour diet recall and nutrition knowledge estimate. It was not possible to tell if the zero answers for education and the amounts spent for housing, food, and income were legitimate zero answers or if they meant "no answer."

A look at the frequencies with which certain answers appeared on Table VII-A, B, C, D and E and comparing them with

TABLE VII

CHARACTERISTICS OF A SAMPLE OF 3,345 PENNSYLVANIA FAMILIES IN THE NUTRITION EDUCATION PROGRAM--OCTOBER 1969*

A. Place of Residence and Welfare Status

	Percent
Urban	73
Rural Non-Farm	24
Rural Farm	3
	100

Welfare Recipient	29
Non Welfare Recipient	71
	100

B. Characteristics of the Homemaker

	Percent
Race	
Caucasion	71
Negro	28
Other	1
	100
Education	
Less than 8th Grade Education	11
Age	
Under 25	17
26-45	52
46-65	23
66 and over	9
	101**

C. Income of Families

	Percent
Less than $1,000	4
$1,000-$1,999	11
$2,000-$2,999	18
$3,000-$3,999	24
$4,000-$4,999	22
$5,000 and over	22
	101**

D. Home Ownership

	Percent
Own	39
Rent	61
	100

E. Size of Families

Persons	Percent
1-2	26
3-5	40
6-8	28
Over 8	6
	100

* Percentages based on the number of responses

** Percentages do not total to 100 due to rounding

the universe of persons in the program on Table II shows that this sample is representative of the universe.

Characteristics of the Sample. An analysis of the more complete data from the sample can tell more about the characteristics of the families being reached by the Nutrition Education Program than are described by the monthly and six months country reports. Table VII shows some of these characteristics. It is interesting to note that of the client homemakers eleven percent have less than eighth grade educations and that thirty-nine percent own or are buying their homes.

Numerous Family Records, Parts 1 and 2 had blank answers for some of the parameters in question; these were eliminated. This reduced the sample from 3,345 to 1,303. The average age of the homemakers in the sample was forty years; the average education of the homemakers was ten years; the average size of the families was 4.3; and the average monthly income for families was $330. The average income per person was $96 per month. The average amount spent per person for food was $28 per month. The average family size for white clients was slightly higher than for non-white families and income and education slightly lower. This is most likely a reflection of rural-urban differences as most of the non-white clients live in urban areas and the rural clients are mostly white. Rural families are larger and have lower incomes and less education than do urban families. The average amount spent for home payment or rental was $56 per month. This low housing cost may be due to the fact that the Aides visited housing projects to enlist people in the program and secured a high percentage of their clients there.

Two regression problems were designed which used "nutrition knowledge" as the dependent variable and two which used "adequate diet" as the dependent variable.

Nutrition Knowledge as a Dependent Variable. Equation 1 used good nutrition knowledge (as measured by Family Record, Part 2) as the dependent variable. The independent variables were the number of family members, the age of the homemaker, the education of the homemaker, a dummy variable for race (white=1, non-white=0), and the per capita income of family members. Results of this problem indicate that only one percent of the variation in the dependent variable (whether or not the homemaker's knowledge of nutritional adequacy was good) can be explained by these variables (R^2=.01); significant at the .05 level of significance. The number of family members was the only variable that showed a significantly positive relationship with knowledge--the Student T test had a value of 2.13 which is significant at the five percent level. The other variables were not significant, but their regression coefficients had reasonable signs; i.e. age was negatively correlated with knowledge and education positively correlated with knowledge, per capita income was slightly positive and white race was negatively correlated.

A second problem was constructed in the same way as the first but a set of dummy variables (one school child, two school children, three school children, four school children and more than four school children; the omitted category was zero school children) were substituted for the continuous variable, number of family members. The results of this problem, equation 2,

showed that those homemakers with one or more school children had a higher probability of having good nutritional knowledge than did those with no school children (F=2.4). However, the results were somewhat erratic, in that the individual categories representing families with two or four school children did not turn out to be significantly different from those with no school children. Nonetheless, the Student T value for the families with more than four school children was 2.65 (significant at the .01 level) indicating families with several school children had significantly better knowledge than those with none. This could possibly be a reflection of the advanced education of the children influencing the knowledge of the homemaker.

Adequate Diet as a Dependent Variable. Similar results were found in equation 3, when "good diet" of the homemaker was used as the dependent variable and number of family members, age, education, race, good nutrition knowledge, and per capita income were used as independent variables. The R^2 value for this problem was .0157 (significant at the .05 level). The "number of family members" was positively correlated (Student T=1.99; significant at the .05 level). Good knowledge was positively correlated (Student T=2.8; significant at the .01 level). The other variables had reasonable signs (i.e. income and education were positively correlated with a good diet and age was negatively correlated with good diet) but were not significant at the .05 level.

For the fourth problem the five dummy variables for the number of children in school were substituted, as in equation 2 above, for the number of family members. Good knowledge showed a Student T of 2.75, significant at the .01 level. The home-

makers with more than four school children have the highest probability of having a good diet (Student T=1.76, significant at the .01 level). But in this equation the number of school children (as a set of dummy variables) was not statistically significant (F=1.22).

A Chi Square table was tabulated on the original sample of first diet records. In all cases persons giving incomplete answers were not included. The diets were categorized into good, fair and poor. Good diets were those having scores 2-2-4-4; fair were those having at least 1-1-1-1, but not 2-2-4-4; and poor were those not having 1-1-1-1. Independent variables used were (1) place of residence (urban, rural, non-farm, and rural farm), (2) garden, no garden, (3) number of family members, (4) age of homemaker, (5) ethnic group, and (6) income. Again the only measure which showed statistical significance was size of the family group. The one and two person households had a higher incidence of poor diet than would be expected by random variation and the families with five or more members showed considerably more persons having good diets than would be expected. The value of the Chi Square for eighteen degrees of freedom was equal to 38.6 (this value is significant at the .01 level). This lends support to the theory that persons living in one and two person households are much more likely to have poor dietary intakes than those living with larger family groups. Again we must remember that the measure of dietary intake is crude.

Changes in 151 First and Second Food Records. Among the sample of records were 151 matching first and second food records (Family Record, Part 2). An examination of these (see Table VIII)

TABLE VIII

DIETARY CHANGES SHOWN BY A SAMPLE OF 151 MATCHED FOOD RECORDS OF PENNSYLVANIA NUTRITION EDUCATION PROGRAM CLIENTS

First Record	Second Record: Improved	No Change	Regressed
Good Diet Cases-12	XX	7	5
Fair Diet Cases-103	22	76	5
Poor Diet Cases-36	28	8	XX

Of 28 Poor Diets That Improved

Income	9 had an increase in income
	11 remained the same
	8 didn't answer
Food Expenditure	11 had an increase in food expenditure
	5 had a decrease in food expenditure
	2 remained the same
	10 didn't answer

Of 22 Fair Diets That Improved

Income	4 had an increase in income
	1 had a decrease in income
	15 remained the same
	4 didn't answer
Food Expenditure	8 had an increase in food expenditure
	6 had a decrease in food expenditure
	5 remained the same
	3 didn't answer

Of 8 Poor Diets With No Change

Income	2 had an increase in income
	2 remained the same
	4 didn't answer
Food Expenditure	2 had an increase in food expenditure
	4 remained the same
	2 didn't answer

Of 76 Fair Diets With No Change

Income	21 had an increase in income
	7 had a decrease in income
	28 remained the same
	20 didn't answer
Food Expenditure	31 had an increase in food expenditure
	11 had a decrease in food expenditure
	13 remained the same
	21 didn't answer

	First Record	Second Record	n
Percent scoring 1-1-1-1	76	91	151
Percent scoring 2-2-4-4	8	22	151

shows that of the 151 only twelve had the 2-2-4-4 ideal diets on the first food record, 103 had at least one serving from each food group (1-1-1-1) but not 2-2-4-4 and thirty-six failed to have any servings of one or more of the four food groups. The second records on the same 151 homemakers showed that twenty-two of the 103 with 1-1-1-1 improved and that twenty-eight of the thirty-six with the poorest diets improved. As it was very difficult to judge degree of improvement the diets were considered to have been improved if they moved from not having at least one serving from each food group, to having at least one (1-1-1-1) or to the ideal (2-2-4-4) or if they had moved from having scored 1-1-1-1 but not 2-2-4-4 to scoring 2-2-4-4 on the second record. The second records showed that of those thirteen who originally had the ideal 2-2-4-4 five had less than that on the second record (with this method they could not improve) and that of the 103 who had originally had a 1-1-1-1 score on the first record, only five failed to show as good a food intake on the second record.

Unfortunately, this comparison is confounded by the fact that these records were gathered at two different times of the year--the first records were mostly taken in March and the second records were taken in September. Again we must consider the effect of the season of the year before we can attribute the improvement of diet to the effect of education by the Nutrition Education Program. This fact in conjunction with the rather small sample size (n=151) precludes any valid conclusions regarding the before-and-after effects of the Nutrition Education Program.

Using these 151 matching records a regression equation (#5) was designed using "Good Diet" (on the second record) as the dependent variable. Independent variables were dummy variables representing: no school children, income over $5,000 per year, good first diet record, and good nutrition knowledge on the second record. This equation produced an R^2=.104.

The Student T test showed all four variables to be positively significant (the no school children variable was expected to have a negative effect but did not probably due to sampling variation). Children and income variables were significant at approximately the .05 level, with Student T scores of 1.93 and 1.97 respectively. Good first diet and good knowledge both were shown to be significant at less than the .01 level, with Student T scores of 3.4 and 3.2 respectively. It would have been most interesting to include the number of visits by a Nutrition Aide as a variable. Unfortunately, this information was not available.

(See Appendix B for a full statement of the above mentioned regression problems.)

CHAPTER IV

SUMMARY

A survey by the United States Department of Agriculture in 1965 showed that Americans were eating less well than they had ten years earlier when a similar survey was made. Low income families were shown to have the poorest diets. Although the USDA has long been concerned with human nutrition, publicity concerning hungry Americans and the resultant public awareness made it possible to use additional funds for a nutrition education program. This program was implemented through the Land Grant Colleges and County Agricultural Extension Services. Research had shown that an effective way to reach low-income families was through the use of indigenous program aides.

Approximately fourteen percent of the families in Pennsylvania are living in poverty. These families are distributed unequally throughout Pennsylvania counties. The Nutrition Education Program was implemented in twenty-five Pennsylvania counties in February of 1969. The objectives of the program are:

1. To help low-income families improve the nutritional adequacy of their diet.
2. To help families and especially the homemaker to better manage limited resources.
3. To help the homemaker in these families improve their food preparation skills.
4. To help families use better food buying practices.
5. To help families use improved methods of storing food.
6. To encourage families to use the food stamp program or commodity distribution foods.

This paper is a report of the progress of the program in Pennsylvania through June of 1970.

As the Extension Nutrition Aides work with families certain records are completed. The description, or Family Record, Part 1, is taken in the beginning and at twelve month intervals thereafter. Family Record, Part 2 which includes an estimate of the homemaker's nutrition knowledge, a twenty-four hour diet recall and total monthly income and food expenditures is taken at six month intervals. Composites of these two family records are reported to the state twice a year, as of the end of March and September. These are used by the Economic Research Service of the United States Department of Agriculture to evaluate the program. Lack of a control group and lack of knowledge concerning those persons who drop out of the program limit possible means of evaluation of the program. Records that would make it possible to evaluate the progress toward attainment of the non-nutritional goals are not made.

The Nutrition Education Program in Pennsylvania as of June 1970 included twenty-seven counties and as of that date involved 8,180 families. New clients were added rapidly at first and, as the Aides became more fully occupied, the gain leveled off to a monthly rate of between six and seven percent. The monthly rate of clients being dropped has not, as of June, equaled the gain rate. A projection based on the evidence to June indicates that the program monthly turnover will stabilize at about five percent.

Records show that the characteristics of persons in the

program have changed slightly over the year and one-half that is represented by the first three six-month's reports. Most alarming is the lessened percentage of clients who are in the less than $3,000 annual income bracket. These figures, as they are not adjusted for family size, are not conclusive evidence that as time goes by the Aides are tending to work with those clients that are in better economic situations, but the evidence does suggest that this may be true.

Records show that thirty to thirty-eight percent of the client homemakers in the program have failed to have at least one serving from each of the four food groups at the time the first food records were taken. Only ten to eleven percent of first records would be considered adequate by the measures used. Second records show a remarkable improvement in diet. Eighteen to twenty percent are considered adequate and only twenty-two to twenty-three percent of the homemakers failed to have at least one serving from each of the four food groups. There is reason to believe that the season of the year has an effect on diet--fruits and vegetables are more readily available from gardens in September than in March, for example. The lack of a control group limits efforts to evaluate the success of the program. Records do show that the greatest improvements have been in the "Milk" and "Fruits and Vegetables" groups. Statistical tests indicate that the presence of older school children in the family has a positive effect on the dietary knowledge level of the homemaker and that good nutrition knowledge has a positive effect on dietary intake.

APPENDIX

(REV. 11/69)

FOOD AND NUTRITION EDUCATION PROGRAM

PAGE_____ OF _____

AIDE'S LIST OF FAMILIES

(1) MONTH _____ (2) YEAR _____ (3) AIDE _____ (NAME) (4) STATE NO. _____ (5) UNIT NO. _____

LAST NAME (6)	FAMILY ID NO. (7)	TOTAL NO. IN FAMILY (8)	NO. CHILDREN IN FAMILY (INFANTS TO 19) (17)	PROGRAM STATUS (✓)				RECEIVED (✓)		NO. OF HOME VISITS (15)	IN GROUP ONLY (✓) (18)	NO. YOUTH IN 4-H TYPE ACTIVITY (19)	NOTES INCLUDING REASON FOR FAMILY LEAVING PROGRAM (16)
				FIRST OF MONTH (9)	ADDED (10)	LEFT (11)	END OF MONTH (12)	FOOD STAMPS (13)	DONATED FOODS (14)				

Food and Nutrition Education Program

FAMILY RECORD -- PART 1

DESCRIPTION

(1) Family ID No. _____

(a) Name _____

(b) Street _____

(c) City _____ (d) State _____

(e) ☐ Urban ☐ Rural nonfarm ☐ Farm

(2) (a) Date of first visit: _____

(b) Date record completed: _____

(3) Family on welfare (other than donated foods and food stamps): ☐ Yes ☐ No

(4) Family receiving food assistance on regular basis (other than donated foods and food stamps):

☐ Yes ☐ No

(5) Family gets some food from home garden:

☐ Yes ☐ No

FAMILY MEMBERS (FIRST NAME) (6)	AGE YRS. (7)	SEX		CHECK IF "YES"	
		MALE (8)	FEMALE (9)	NOW IN SCHOOL (10)	PARTICIPATED IN SCHOOL LUNCH PROGRAM LAST WEEK (11)
(NO. OF MEMBERS _____) TOTALS					

(12) HIGHEST GRADE IN SCHOOL COMPLETED BY HOMEMAKER: _____

(13) HOME:

(a) ☐ OWNER

(b) ☐ RENTER OR TENANT

(c) MONTHLY PAYMENT

$ _____

(14) INSIDE HOUSE THERE IS:

(a) ☐ ELECTRICITY (e) ☐ FREEZER

(b) ☐ RUNNING WATER (f) ☐ COOK STOVE

(c) ☐ ICE BOX (g) ☐ OVEN

(d) ☐ REFRIGERATOR (h) ☐ HOT PLATE

(15) BUY MOST OF FOOD AT:

(a) ☐ SUPERMARKET

(b) ☐ SMALL LOCAL STORE

(16) THIS FAMILY PARTICIPATES IN:

(a) ☐ USDA DONATED FOOD PROGRAM

(b) ☐ USDA FOOD STAMP PROGRAM

FOOD SOURCES	HOW FAR FROM HOME			HOW USUALLY GET THERE			
	LESS THAN 1 MILE (a)	1-5 MILES (b)	MORE THAN 5 MILES (c)	WALK (d)	OWN CAR (e)	BUS OR TAXI (f)	OTHER (g)
(17) STORE (IN 15)							
(18) DONATED FOOD CENTER							
(19) FOOD STAMP ISSUANCE OFFICE							

(20) Check for home maker:

(a) ☐ White *(other than Spanish-American)*

(b) ☐ Negro

(c) ☐ Spanish-American

(d) ☐ Oriental

(e) ☐ Indian

(f) ☐ Other

(21) Income last year for all family members. Include income from all sources, such as:

Wages and salaries

Social Security

Welfare payments

Insurance payments

Veterans benefits

Pensions

Support from others

Income after expenses from business and farming

CHECK ONE:

(a) ☐ Less than $1,000

(b) ☐ $1,000 - 1,999

(c) ☐ $2,000 - 2,999

(d) ☐ $3,000 - 3,999

(e) ☐ $4,000 - 4,999

(f) ☐ $5,000 and over

(22) Aide _____ (23) State No. _____ (24) Unit No. _____
(Name)

(25) Family Record No. _____

(Fill out for each family in unit as soon as possible and yearly thereafter. Keep in family file after review by Trainer-Agent)

Food and Nutrition Education Program

FAMILY RECORD -- PART 2
HOMEMAKER FOOD AND FAMILY INCOME AND FOOD EXPENDITURE RECORD

(1) Family ID No. _____ (2) Date _____ (3) Food Record No. _____

(4) Record for _____
(name)

(5) What did you eat and drink in the last 24 hours?

To be filled by Aide Kind of food and drink *(Enter main foods in mixed dishes)*	TO BE FILLED BY TRAINER AGENT MILK	MEAT	VEG./ FRUIT	BREAD CEREAL
Morning				
Midmorning				
Noon				
Afternoon				
Evening				
Before Bed				
Total no. of servings:	(12)	(13)	(14)	(15)
Totals at least -- (16)	1	1	1	1
	Yes ☐		No ☐	
Totals at least -- (17)	2	2	4	4
	Yes ☐		No ☐	

(6) What food and drink do you think people should have to keep healthy?

	TO BE FILLED BY TRAINER AGENT			
	MILK	MEAT	VEG./ FRUIT	BREAD CEREAL
Total:	(18)	(19)	(20)	(21)
Totals at least - -	1	1	1	1
(22)	Yes ☐		No ☐	

(7) Total estimated income for family last month: $ _____
(Include wages and salaries, Social Security, welfare and insurance payments, pensions and cash support from others. If family has income from farming, include one-twelfth of last year's income after expenses.)

(8) How much did you spend for food last month, including both cash and credit? _____.
(Do not include value of foods received under Donated Food or other food assistance programs. If in the Food Stamp Program, include only amount spent to purchase food stamps or coupons).

(9) Aide _____ (10) State No. _____ (11) Unit No. _____

(Fill out at earliest visit possible for homemaker in each family and every 6 months after. Keep in family file after review by Trainer Agent.)

U.S. GOVERNMENT PRINTING OFFICE : 1969 O—364-517

Form No. FES-245
(Rev. 8-70)

Food and Nutrition Education Program

UNIT REPORT -- PART 3
MONTHLY REPORT OF FAMILIES AND AIDES

---

1. End of Month: _____ (1 - 2) 2. Year: _____ (3 - 4) 3. State No.: _____ (5 - 7) 4. Unit No.: _____ (8 - 10)

Families -- Number of: (A Program family is one on which items 1-11, Family Record - Part 1, have been completed.)

5. _____ (11 - 14) Families in Program beginning of month.

6. + _____ (15 - 18) Families added to Program during month.

7. - _____ (19 - 21) Families leaving Program during month.

8. = _____ (22 - 25) Families in Program end of month.

9. _____ (26 - 29) Non-Program families worked with during month (with Record - Part 1 not yet taken).

For families in Program end of month -- Number of:

10. _____ (30 - 33) Total persons in Program families.

10a. _____ (11 - 15) Children in these families (infants through 19).

11. _____ (34 - 37) Program families getting Food Stamps during month.

12. _____ (38 - 41) Program families getting Donated Foods during month.

13. _____ (42 - 45) Program families receiving one or more visits during month (in home or in group).

Aides -- Number of:

14. _____ (46 - 48) Trained Aides at beginning of month.

15. + _____ (49 - 50) Aides added who have completed initial training during the month or were previously trained.

16. - _____ (51 - 52) Trained Aides leaving Program during month.

17. = _____ (53 - 55) Trained Aides at end of month.

18. _____ (56 - 57) Aides in initial training but not yet working independently with families at end of month.

19. _____ (58 - 62) Total Aide payroll hours during month.

Participants in group meetings only -- Number of:

20. _____ (16 - 20) Program families.

21. _____ (21 - 25) Non-Program families.

Youth in 4-H type activities -- Number of:

22. _____ (26 - 30) From Program families.

23. _____ (31 - 35) From non-Program families.

24. _____ Total <u>different</u> youth worked with since July 1 (current fiscal year).

25. _____ Total <u>different</u> volunteers active in the food and nutrition 4-H type program since July 1 (current fiscal year).

Report should be in ES by 15th of month following reporting month.
Send to:

Report prepared by: _____
Name and title

REPORTS AND ANALYSIS BRANCH
MANAGEMENT OPERATIONS
EXTENSION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

U. S. GOVERNMENT PRINTING OFFICE : 1970 O - 372-694

897.8 19

Form No. FES-243

Food and Nutrition Education Program

UNIT REPORT -- PART 1
CHARACTERISTICS OF FAMILIES IN PROGRAM

1. As of: ☐ 3/31; ☐ 9/30 (1) 2. Year: _____ (3 - 4) 3. State No.: _____ (5 - 7) 4. Unit No.: _____ (8 - 10)

Number of Program Families:

5. Living in: a. _____ (11 - 14) Urban; b. _____ (15 - 18) Rural Nonfarm; c. _____ (19 - 22) Farm

6. _____ (23 - 26) on welfare *(other than Donated Foods and Food Stamps)*

Number of Children:

7. _____ (27 - 30) in school 8. _____ (31 - 34) having school lunch last week

Number of Homemakers:

9. _____ (35 - 38) having completed 7th grade or less.

Other Family Characteristics:

10. Number of families in Program with estimated family income last year as follows:

Income *(dollars)*	Number of families
a. Less than $1,000	_____ (39 - 42)
b. $1,000 - 1,999	_____ (43 - 46)
c. $2,000 - 2,999	_____ (47 - 50)
d. $3,000 - 3,999	_____ (51 - 54)
e. $4,000 - 4,999	_____ (55 - 58)
f. $5,000 and over	_____ (59 - 62)

(80) 1

CLASSIFICATION OF HOMEMAKERS AND PROGRAM AIDES

	11. NUMBER OF HOMEMAKERS	12. NUMBER OF PROGRAM AIDES
a. White *(other than Spanish-American)* ..	_____ (11 - 14)	_____ (41 - 42)
b. Negro	_____ (15 - 18)	_____ (43 - 44)
c. Spanish-American	_____ (19 - 22)	_____ (45 - 46)
d. Oriental	_____ (23 - 26)	_____ (47 - 48)
e. Indian	_____ (27 - 30)	_____ (49 - 50)
f. Other	_____ (31 - 34)	_____ (51 - 52)
g. TOTAL	_____ (35 - 40)	_____ (53 - 56)

Send within 30 days of date checked in item (1) above to: (80) 2

REPORTS AND ANALYSIS BRANCH
MANAGEMENT OPERATIONS
EXTENSION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

13. Report prepared by _____
Name

GPO 897-818

Form No. FES-244

Food and Nutrition Education Program
UNIT REPORT -- PART 2
SUMMARY OF HOMEMAKER FOOD, FAMILY INCOME AND FOOD EXPENDITURE RECORDS

1. For 6-month period ending: a. ☐ 3/31 b. ☐ 9/30
(1)

2. Year: _____ 3. State No.: _____ 4. Unit No.: _____
(3 - 4) (5 - 7) (8 - 10)

5. Homemakers with specified servings of four food groups during 24 hours prior to interview:

FOOD GROUP AND NUMBER OF SERVINGS	FROM FOOD RECORD NUMBER--					
	1	2	3	4	5	6
	--- NO. OF HOMEMAKERS ---					
Milk:						
a. None						
b. One						
c. Two						
d. Three or more						
Meat:						
e. None						
f. One						
g. Two						
h. Three or more						
Vegetables and fruit:						
i. None						
j. One						
k. Two						
l. Three						
m. Four						
n. Five or more						
Breads and cereals:						
o. None						
p. One						
q. Two						
r. Three						
s. Four						
t. Five or more						
Number of Homemakers:						
6. For which a food record was completed						
7. With one or more servings of each of the four food groups						
8. With 2 or more servings of milk and meat and 4 or more of veg/ fruit and bread/cereals.						

9. Homemakers naming a food in food group as one she thinks people should have regularly to keep healthy

FOOD GROUP	FROM FOOD RECORD NUMBER--					
	1	2	3	4	5	6
	--NO. OF HOMEMAKERS --					
a. Milk						
b. Meat						
c. Vegetable/fruit						
d. Bread /cereal						
10. All four food groups						
11. TOTAL number of homemakers reporting:						
12. Average monthly family income						
13. Average monthly family expenditures for food						

14. Report prepared by: _____
Name

Send within 30 days after end of reporting period to:

REPORTS AND ANALYSIS BRANCH
MANAGEMENT OPERATIONS
EXTENSION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

GPO 897-823

DAILY FOOD GUIDE

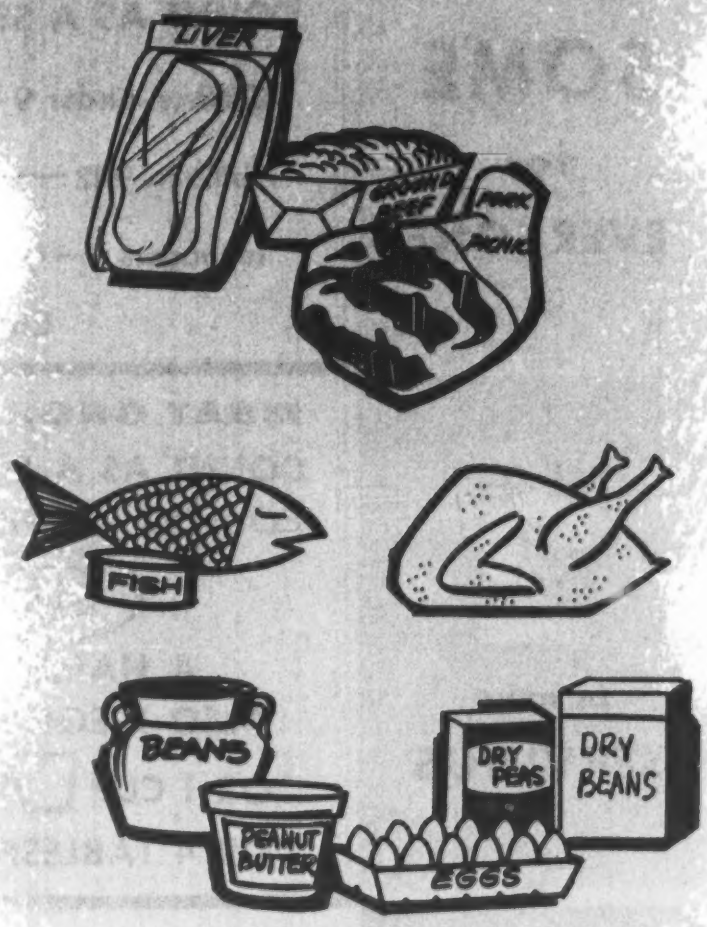
some choices for thrifty families

MILK GROUP

some for everyone

MEAT GROUP

2 or more servings

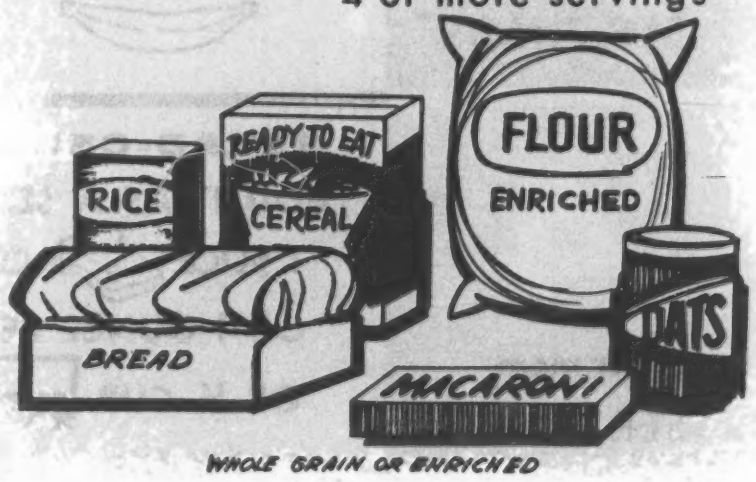


VEGETABLE - FRUIT GROUP

4 or more servings

BREAD - CEREAL GROUP

4 or more servings



WHOLE GRAIN OR ENRICHED

everyday eat foods from each group

EAT OTHER FOODS AS NEEDED TO ROUND OUT MEALS

U.S. DEPARTMENT OF AGRICULTURE • Food and Nutrition Service • Agricultural Research Service • July 1966

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 – Price 10 for 35 cents, 100 for $3.25

FNS–13

Follow the Food Guide
Every Day

SOME
for
EVERYONE

MILK GROUP

COUNT AS A SERVING 1 CUP OF MILK

Children under 9— 2 to 3 cups
Adults — 2 or more cups
Children 9-12 — 3 or more cups
Pregnant Women— 3 or more cups
Teenagers — 4 or more cups
Nursing Mothers— 4 or more cups

Cheese can be used for part of the MILK

2
or more
SERVINGS

MEAT GROUP

COUNT AS A SERVING 2 OR 3 OUNCES OF COOKED LEAN MEAT, POULTRY OR FISH — — SUCH AS

A HAMBURGER

OR A CHICKEN LEG

OR A FISH

ALSO-2 EGGS

OR 1 CUP COOKED DRY BEANS OR PEAS

OR 4 TABLESPOONS PEANUT BUTTER

4
or more
SERVINGS

VEGETABLE-FRUIT GROUP

COUNT AS A SERVING ½ CUP (RAW OR COOKED)

OR 1 PORTION SUCH AS

OR
OR

4
or more
SERVINGS

BREAD-CEREAL GROUP (WHOLE GRAIN OR ENRICHED)

COUNT AS A SERVING

1 SLICE OF BREAD OR 1 BISCUIT

OR 1 OUNCE READY-TO-EAT CEREAL ----

OR ½ CUP TO ¾ CUP COOKED CEREAL,

CORNMEAL, GRITS, MACARONI, RICE, OR SPAGHETTI

EAT OTHER FOODS AS NEEDED TO ROUND OUT THE MEALS

U.S. DEPARTMENT OF AGRICULTURE • Food and Nutrition Service • Agricultural Research Service • July 1966

57 ☆ U.S. GOVERNMENT PRINTING OFFICE:1971—O-426-041 FNS-13 (formerly C&MS-23)

APPENDIX B

Equation I

Dependent Variable--#32--Good Nutrition Knowledge

R-Square = 0.0100794

Independent Variables		Regression Coefficient	Student T
One (Constant)	1	0.57562111	5.35133896
Number of Family Members	2	0.01489736	2.13470486
Age	4	0.00090875	0.86386670
Education	5	0.00481866	0.73403323
White	26	0.05807795	1.70650093
Income per Person	34	0.00040795	1.66372427

Equation II

Dependent Variable--#32--Good Nutrition Knowledge

R-Square = 0.0158071

Independent Variables		Regression Coefficient	Student T
One Constant	1	0.62115117	6.37161953
Age	4	-0.00115738	1.13622502
Education	5	0.00287766	0.43378903
One School Child	21	0.09717744	2.23703895
Two School Children	22	0.06764403	1.62894033
Three School Children	23	0.10134173	2.19768268
Four School Children	24	0.02078480	0.38825645
Over Four School Children	25	0.14256326	2.65284798
White	26	-0.05574254	1.63535390
Income per Person	34	0.00039700	1.70322625

F Ratio = 2.4188 for the following variables--21, 22, 23, 24, 25.

Equation III

Dependent Variable--#30--Good Diet

R-Square = 0.0157347

Independent Variables		Regression Coefficient	Student T
One Constant	1	-0.02147056	0.34358775
Number of Family Members	2	0.00801966	1.99633757
Age	4	-0.00054592	0.90285206
Education	5	0.00360800	0.95626264
White	26	0.02047291	1.04567997
Good Nutrition Knowledge	32	0.04479450	2.80740873
Income per Person	34	0.00009874	0.70002500

Equation IV

Dependent Variable--#30--Good Diet

R-Square = 0.0173513

Independent Variables		Regression Coefficient	Student T
One Constant	1	0.00916977	0.16084403
Age	4	-0.00076783	1.30840595
Education	5	0.00357032	0.93459068
One School Child	21	0.02878750	1.14863088
Two School Children	22	-0.00423717	0.17701664
Three School Children	23	0.03748673	1.40913273
Four School Children	24	0.03834019	1.24368150
Over Four School Children	25	0.05462285	1.76038511
White	26	0.02362125	1.20222734
Good Nutrition Knowledge	32	0.04405382	2.75099698
Income per Person	34	0.00006078	0.45237462

F Ratio = 1.2210 for the following variables--21, 22, 23, 24, 25.

Equation V

Dependent Variable--#72--Good Second Diet Record

R-Square = 0.1043491

Independent Variables		Regression Coefficient	Student T
Zero School Children	55	0.10371356	1.93300255
		0.16526921	1.96865553
Good First Diet	66	0.40431698	3.42274396
Good Nutrition Knowledge on Second Record	74	0.16799695	3.19650070

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